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High Emissions of Sulfur Dioxide affecting the Construction Work in Kuwait Oil Company

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Kuwait Oil Company stated parts of production to achieve strategic one (1) billion SCFD of non-associated gas production from North Kuwait Jurassic Fields by 2022/23. The company completed the construction of two JPF's in Rawdhtain (East and West). Each Jurassic Production Facility categorized into two phases. The oil and gas section (Phase-I) for both plants were commissioned Mid-2018, while the sulfur recovery units (phase-II) are still under construction. The standard practice is that the Acid Gas stream flows to the Acid Gas Incinerator for complete combustion until the Sulphur Recovery Unit (SRU) commissioned or when the SRU is offline.

The initial plan was to commission the SRU after the facility starts production (to expedite the strategic goal of light oil production). While the SRU was under construction, the incinerator was out of service and the acid gas was directed to the flare stack. The flare stack was designed to meet the emissions requirements of Kuwait Environment Public Authority, except for the SO₂ emissions. This unusual practice in the flaring caused high emissions of SO₂ (0-12 ppm) and has created many hazardous areas depending on the wind direction which also effects the construction activities in the SRU (phase-II) and any remaining construction/maintenance works.

Four employees were injured in the last six months with some near fatal incidents in both plants. Immediate safety measures were taken to ensure successful construction with zero incidents considering working under high toxic gas and the winds directions coming from 3 different flares in both plants. This includes assigning two master points in opposite directions and providing fixed multi-gas detectors upper specific modules in the location. This paper could help in better understanding and prevention of future toxic or hazardous atmosphere accidents including more than 70 evacuations and 27 days of suspension of work. This paper indicates the full plan followed by the construction team to avoid any accidents until the commissioning of the sulfur recovery unit (May 2019) while the higher management was refusing the recommendations of a temporary shutdown of the oil and gas sections.